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Accelerated Multi-Organization Conflict Resolution

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Abstract In this paper, we discuss two situations where two organizations with different aims recognized the dysfunctionality of their relationship. In each of these cases, which were long running (6–8 months), the organizations had worked hard to resolve this dysfunctionality, and conflict, by organizing off-site meetings designed to resolve the conflict. These 1-day meetings failed. Subsequently Group Support System workshops were used for 1 day workshops and in each case the conflict was essentially resolved within 55 min. The research reported in this paper seeks to answer the question: what happened in these cases that led to a resolution of the conflict in such a short time period, given other attempts had failed? Specifically the paper explores the impact of the GSS used to facilitate two organizations seeking to resolve a conflictual situation.

Keywords Conflict resolution · Group Support Systems · Causal mapping · Multi-organization

1 Introduction

Multi-organizational collaboration has become established as a means for several organizations to achieve more than any could on their own (Bryson et al. 2006). However, when these organizations have considerably different objectives there can be the potential for significant conflict. Sometimes this conflict is recognized as dysfunctional by all parties and in these circumstances all parties want to achieve a change

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in their relationships. However, they are uncertain of the best means for doing this as the process of collaboration is not straightforward. This situation is reflected in the extant literature where researchers note that collaboration is difficult (Bryson et al. 2006; Vangen and Huxham 2003) and frequently fails.

Research has been conducted to explore the role Group Support Systems (GSS) play in single organizations to enable group decision and negotiation for brain-storming, problem solving and strategy making, and in multi-organizations (Ackermann et al. 2005; Franco and Rosenhead 2001).

However, research into the role of a GSS in conflict negotiations is limited. Miranda and Bostrom (1993) quantitative study concluded that using a GSS can lead to lower amounts of issue-based and interpersonal conflict, but the overall impact on the productivity of negotiation was not entirely clear. Anson and Jelassi (1990) write about an application of a GSS in conflict mediation, but does not involve a GSS using causal mapping, as was the case in this study. Their reportage concentrates on reducing ambiguity in problem definition by the participants, whereas, in the research reported here ambiguity has been shown to play an important role in reaching agreement. Cronin et al. (2014) explore the use of a Problem Structuring Method, called *Issues Mapping*, as a good way of helping conflicted parties in better understanding each other's positions, however it does not reflect the role of a computer supported GSS, and neither does it discuss the facilitated workshop from a micro perspective, which is a primary purpose of the research reported in this paper.

In this paper, we discuss two situations where two organizations with different objectives recognized the dysfunctionality, and conflictual nature, of their relationship. In each of these cases, which were long running (6–8 months), the organizations had worked hard to resolve the conflict by organizing off-site meetings. The 1-day meetings failed. One of the authors, who had successfully worked with each of the organizations before, was invited to facilitate an off-site workshop using a GSS in each case. Although each of the workshops had been planned to take place over one full day, in both workshops the conflict was resolved within 55 min and the rest of the day was spent designing strategies to decrease the probability of a further occurrence of the conflict, as well as working on other issues.

Thus the research noted in this paper seeks to answer the question: what happened in these cases that led to a resolution of the conflict in such a short time period, given other attempts had failed? Specifically the paper explores the impact of a GSS used to facilitate two organizations to resolving a conflictual situation. Consequently it focuses on the first 55 min.

Getting groups to work effectively together has been seen as a challenge and necessity, and considerable work has been undertaken towards facilitating such activity. For example, recent research has sought to better understand how leadership teams negotiate a consensus under crisis (Combe and Carrington 2015), how groups produce knowledge in facilitated workshops (Tavella and Franco 2014), what role the causal maps play in effective working (Paroutis et al. 2015) and finally the contribution of GSSs when facilitating multi-organizational working (Ackermann et al. 2005). Not surprisingly, when the conflict straddles organizations with significantly different aims, as in the cases reported in this paper, resolution poses a far greater challenge.

Consequently to better understand how best to support this form of organizational working, this paper draws on detailed analysis of the first 55 min of each of the workshops. The analysis is undertaken with the purpose of understanding what unfolded, and thus answer the question of what was the impact of the GSS, in facilitating the two organizations to resolve a conflictual situation. From this analysis we hope to understand better what it takes to engage in a negotiation that is capable of producing a desirable outcome for both parties in under an hour—an outcome that was a significant surprise to both organizations. This way we seek to address Combe and Carrington's (2015, p. 14) request that “future research should analyze the interaction within leadership teams to help understand more how cognitive consensus is formed”; and also Tavella and Franco's (2014, p. 2) view that “we know very little about what actually happens in a facilitated modelling environment” which they consider as ‘a black-box’.

The structure of the paper is as follows. We first introduce the particular GSS called *Group Explorer* (GE) which was requested for the two negotiation workshops in question. We also provide a brief snapshot of the organizational context. Subsequently, we describe in detail our approach to research design and analysis that was based on analysis of the data logs automatically generated by the GSS and of the causal maps resulting from each of the workshops. We then discuss our findings where we address the question of why a shared agreement in under an hour was possible in the context of the GSS in use. We conclude by providing final remarks about the relevance of these findings to academic knowledge and to the practice of facilitating negotiations.

2 The GSS

GSSs have been in existence since the 1980s although their capacity and utility was initially limited by technological and data management challenges (Lewis 2010). When reflecting on the well-established systems it is interesting to note that they are derived from a range of different theoretical backgrounds. For example, *Group Systems* (Valacich et al. 1991) was developed from an Information Technology paradigm, *Dialogue Mapping* (Conklin 2006) was based on a particular approach to addressing wicked problems (Horst and Melvin 1973) and *Group Explorer* has its foundations in the socio-political (Mangham 1979; Perrow 1986) social and cognitive psychology (Kelly 1963) and negotiation domains (Fisher and Ury's 1981). Consequently the nature of their contribution to supporting a group varies and thus selection for use is best done on the basis of ensuring commensurability between aims of the intervention and GSS design.

What is meant by GSS in this paper, is a category of software tools accompanied by facilitation techniques that are aimed at supporting collaboration (Agres et al. 2005) and group productivity (Jessup and Valacich 1993) through such means as anonymising the contributions (Jessup and Tansik 1991), managing messy information in real-time, problem structuring (DeSanctis and Gallupe 1985), and strategy development (Ackermann and Eden 2010).

2.1 Negotiation: ‘Getting to Yes’

Group Explorer,¹ the GSS used in this research, has been used extensively in supporting organizations of various sizes, including those from the private and public sectors, national and international (Shaw 2003; Tavella and Franco 2014). An important conceptual influence for *Group Explorer* derives from Fisher and Ury’s (1981) work on ‘Getting to Yes’, consisting of principles of what makes a productive negotiation and based on the Harvard Negotiation Project.² The mission of the project is “improve the theory and practice of conflict resolution and negotiation by working on real world conflict intervention, theory building, education and training, and writing and disseminating new ideas”. Fisher and Ury (two of the lead researchers) emphasize the importance of separating a person from a problem so that the participants evaluate the ideas by their merit and not by their author, and so that they have an opportunity for face-saving. The participants should also be able to socially generate multiple options rather than fight over the first plausible options, and they should have a chance to actively contribute to the process in order to have a feeling of ownership and involvement. These aspects of a negotiation may in turn improve the perceived procedural justice of the workshop—the degree to which voices are not silenced and everyone can contribute in a fair manner (Chan and Mauborgne 1998; Tyler and Blader 2003).

2.2 Personal Construct Theory and Causal Mapping

Another key influence for the design of *Group Explorer* is Kelly’s (1955) Theory of Personal Constructs whereby people *make sense of the world* around them through contrast and similarity with respect to the things that they know, by explaining why certain things have happened, and/or by building their own hierarchies of meanings. Each individual has its own construct system (mental map) which, when considered against those of other people, typically results in extension or adaptation to the individual’s construct system, enabling that person to change their mind often imperceptibly.

Cognitive mapping is one means of operationalizing personal construct theory. In a group situation, the principle is extended to the use of causal mapping. The technique of causal mapping is well established (Hodgkinson et al. 2004; Huff 1990) although not always based upon personal construct theory. It has been used in management research as a specific qualitative data capture and analysis method (Hodgkinson and Clarkson 2005; Jenkins and Johnson 1997; Swan 1997; Walsh 1995). Nevertheless, independently of the use, causal mapping typically adheres to a set of formalisms which differentiates it from producing merely ‘word-and-arrow’ diagrams (Bryson et al. 2004).

2.3 The GSS: Group Explorer

Based on the causal mapping technique and a socio-political view of organizations, *Group Explorer* was developed to support facilitated workshops. In use, *Group*

¹ *Group Explorer* is collaboration software designed and developed at Strathclyde Business School. Further information is available from the authors.

² http://www.pon.harvard.edu/category/research_projects/harvard-negotiation-project/.

Explorer involves each participant being provided with a laptop or tablet enabling them to communicate their views to the group via a publically viewable casual map (for illustration see [Ackermann and Eden 2010](#)). Participants create a ‘transitional’ or ‘boundary’ object ([Black and Andersen 2012](#); [Carlile 2002](#); [deGeus 1988](#); [Winnicott 1953](#)) of the situation under consideration. Workshops start with the capture of the statements expressing personal views, these views will be roughly clustered according to content and reviewed with the group, and participants subsequently add causal links (that is, unidirectional arrows which signify the causality following from one statement to another statement) building up a causal map. The addition of the causal links will change the clusters from thematic to reasoned causal networks.

In addition, a *chauffeur module* not only provides the facilitator with control over the meeting (whether to provide participants with the facility to contribute ideas, relationships, preferences etc.) but also provides a range of additional features which are useful in the facilitation process. For example: monitoring the rate of contributions from each participant, the extent to which participants show attention to particular developing themes and clusters of views, etc. The module also provides a real time log that captures over time all contributions/activities from participants, the facilitator driven master machine which projects the emerging map/boundary object, and the chauffeur machine. The log allows a micro level analysis to be undertaken of the second by second behaviour of the participants as they are supported in navigating through the conflictual situation. It is this log alongside the causal maps that constitute the data used in this research.

3 Analyzing the Workshop Data

In this section of the paper we first draw upon relevant negotiation literature, briefly talk about the context of the studied negotiations, and then describe the micro-level analysis.

3.1 Scene Setting: Making Sense of the Negotiation of Conflict

Based on the overarching aim of the paper to explore the impact of a GSS used to facilitate two organizations to resolving a conflictual situation and recognizing the GSS used is based on a socio political theoretical basis, it is worth considering the social nature of developing consensus when undertaking negotiations in situations of conflict. Conflict situations can be challenging endeavours due to the complexity and ambiguity that is inherent when interacting within the context of incompatible views, stress and time pressures ([Combe and Carrington 2015](#)). These endeavours require effort on the part of the participants to review their mental models (understanding) of the situation and develop new ways of responding to it. Some aspects of these mental models—individual’s social construction of reality ([Berger and Luckmann 1966](#))—comprise making sense of the world through attributing causality to events. As noted earlier, each participant’s understanding of a crisis can differ significantly ([Combe and Carrington 2015](#)) and thus exploring the perceptual lenses through which events/situations are being viewed can be the first step towards successful negotiation.

As it is to enable an in-depth understanding of the contributions, their meaning and the process of constructing a shared representation (boundary object), in this research we take a micro-level focus on the cause-and-effect relationships in the form of a causal map.

The focus on causal relationships with regards to individuals' meanings reflects a sensemaking perspective (Weick 1995) in which people contribute to developing situations that they participate in and which they concurrently seek to understand (Maitlis and Christianson 2013; Porac et al. 1989). In a conflictual and complex negotiation the process of sensemaking is believed to play an essential role in dealing with ambiguity, as simply providing more information does not substitute for collectively elaborating and surfacing problems:

To remove ignorance, more information is required. To remove confusion, a different kind of information is needed, namely, the information that is constructed in face-to-face interaction that provides more cues ... People who try to reduce confusion with lean formal media may compound their problems when they overlook promising integrations. And people who try to reduce ignorance with media that are too rich may raise new issues that prevent them from making sense (Weick 1995, p. 99).

The need to explore more deeply the available options in negotiation, and for mutually getting to the root of the problem whilst not just gathering as much information as possible, is also observed by Druckman (2009, p. 437) who argues that, in conflictual situations in which long-term solutions are sought, there will be a need for “a forum or format that is more conducive to exploring the sources of the conflict”. Similarly, Zartman (1977, p. 437) argues that a suitable approach for studying negotiations that are of high significance to the participants is what he calls a *formula-and-detail approach*. Here, *the formula* represents negotiating an outcome that is satisfactory for both sides, while *the detail* stands for an exploration of suitable specifications for that formula (and the other way round); and as he notes, “cognitive maps might help locate this combination” (1977, p. 636). These claims are compatible with Fisher and Ury in the sense that negotiation is portrayed as a dynamic social process of developing new options which reshapes peoples' understanding of the problem in question, rather than simply trying to agree on a mutually plausible solution. Thus, we treat our analysis as an opportunity, as noted above, to explore the impact of a GSS used to facilitate two organizations to resolving a conflictual situation and as part of that aim to consider how the specific causal mapping based GSS supported the participants in making sense of their conflict. We believe that this exploration could usefully guide the future design of workshops employing GSS in supporting organizations in conflict.

3.2 Organizational Context

The *Group Explorer* workshops providing the data underpinning this research took place in two consecutive years and was with a licensee and a regulator who were well acquainted with each other. The organizations are large and each powerful in their own context and each can significantly affect the successful future of the other.

Dysfunctionality and conflict was declared by both to be not in their own interests. In both cases the workshops involved experienced senior managers with a history of interacting with the team from the other organization and there was also a requirement for them to have future interactions going into the foreseeable future. The conflict was recognized to be of serious concern to the Chief Executives of each organization, and there had been, and was, considerable pressure for the two teams to resolve the conflict. However, while the organizations in question were the same for both workshops, the conflicts involved different parts of the organizations. Thus all but one of the participants in the first workshop did not have any involvement in the second workshop. This meant that there was a limited linkage between the separate negotiations' group dynamics (Crump 2010) providing two cases. As part of the workshop design equal representation in terms of number of participants was sought from each organization (2×4 participants attended 'workshop 1' and 1×3 and 1×4 participants attended 'workshop 2') where each manager represented different discipline and role perspectives.

3.3 Analyzing the Data: Coding the Statements and Links

The form of the data was: (i) the causal maps developed by the participants during the workshop, and (ii) the data log of the contributions of participants showing all of their input to the GSS over time. The analysis followed a series of stages which we now describe.

The causal maps enabled a visual inspection of the data to familiarize the researchers with their structure (one of the researchers was already familiar having facilitated the workshops). Subsequently, the process of coding the links and statements (Miles and Huberman 1994), both in the *Decision Explorer* models³ and in the spreadsheets containing the data logs, was undertaken. In order to gain a rich view of what happened in the workshops, a number of approaches to coding were adopted. This required making multiple copies of the causal maps from the workshops and subsequently imposing different combinations of coding. No a priori codes were used and so the categories emerged gradually and were grounded in this specific data (Glaser and Strauss 1967). The emergent codes were tested continually across the coders to ensure their fitness for purpose with tests for inter-coder reliability being undertaken. The codes were also informed through immersion in the workshops and thus familiarity with the context, as reported by the facilitator/researcher. The small number of differences in coding all derived from the facilitator's specialist knowledge of the situation that was derived from initial briefings from participants as well as being present during the workshops. Explanation from the facilitator to the other researchers satisfied the coders of robust inter-coder reliability. The final coding scheme for the contributed statements identified: accusations, admissions, explanations, and conciliatory statements. In addition, the log shows which person (and so which organization) generated the activity and so additional codes were used to show visually which organization and person had generated the statement.

³ *Decision Explorer* provides the researcher with the ability to explore the maps produced in the *Group Explorer* workshops. The software is available through Banxia.com.

During the coding of statements the researchers identified a number of statements where a statement could be coded as either accusatory or conciliatory depending upon who was presumed to have made the statement. This presented the possibility of ambiguity for the participants. In these instances the coding recognized the intended code (drawing from log data) as well as the code as might be perceived by a participant. To ensure robustness and triangulation in the analysis the authors switched between each workshop's causal maps (accessed in *Decision Explorer* software) and the data logs (which amongst other data contained details of authorship thus providing further context on which to determine the coding). This enabled the codes initially developed through exploration of the first causal map to be compared with the results from coding the second map—ensuring comprehensiveness and validity within the maps. And once a degree of robustness emerged, the data logs (containing the second by second capture of all interactions with the causal model) were used to test the codes. For example, in the data log it was easier to follow the authorship of contributions and hence it allowed a better understanding of the possible meaning of statements and links on the causal map. In addition, and as a natural part of triangulating data, the coding was informed by the conversations and correspondence with the participants prior to and after the workshops, as well as by the facilitator's observations during the workshops.

A coding protocol for each causal link was straightforward and followed from the coding of the statements, for example 'accusatory to accusatory' (a link coming from one accusatory statement to another accusatory statement), or 'admission to conciliatory'.

3.4 Patterns in the Causal Maps

The next phase of analysis concentrated on studying the emergent patterns in the maps that were generated by the workshop participants. Each map developed by the group, during the workshop, represented a cluster/network of statements with respect to what the group regarded as an important theme. The notion of importance derived from a combination of the structural properties of the map (as analyzed by the software) and a consensus of participant judgment. In the post-workshop analysis, the causal mapping software (*Decision Explorer*) was again used to explore the structural properties of the overall map, without the addition of the group judgments made by the participants. The mapping software contains a number of analytical functions which were used to explore the structure of the map and reveal emergent patterns. The patterns were subsequently scrutinized through the use of the data log as this enabled the researchers to determine the possible significance of the order in which statements were submitted and attention returned to the map—in an iterative process.

One important form of analysis (pattern exploration) undertaken was the identification of feedback loops. The *loop analysis* directs a researcher to the statements that form vicious cycles that might be at the core of the conflict. For example, in workshop 2 there was a loop with ten interacting loops (see Fig. 1).

Other forms of analysis conducted included a *central analysis* which ranks the statements by their pervasive impact on the map while *domain analysis* ranks the statements by the number of in-out links (Bryson et al. 2004). These two analyses

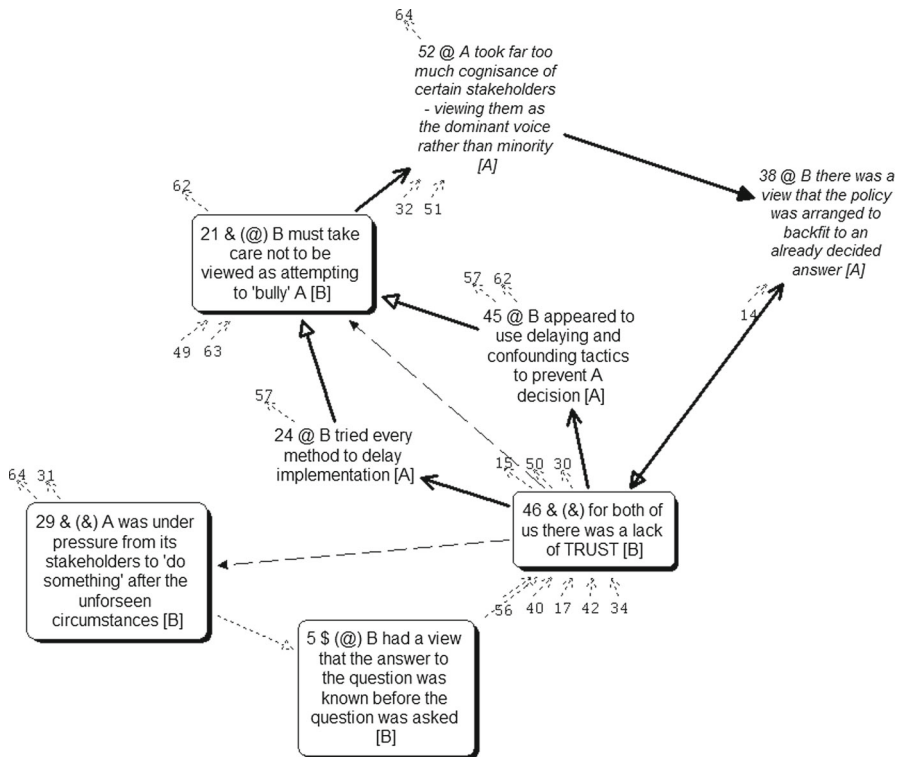


Fig. 1 An example of coding and ten interacting loops from one of the workshops. *Legend* @ = accusatory statement; & = conciliatory statement; \$ = admission; (€ = explanatory); Open arrowhead = @ > & (the > reflects the direct of the link i.e. from accusatory to conciliatory); dotted = \$ > & or & > \$; dashed = & > @; solid arrowhead = @ > @; normal arrowhead = & > @; *small dotted arrows with numbers attached* indicate links to statements not displayed on this view of the map; *codes in brackets* show ambiguous statements for which it would not be clear which party said it; capital letters A and B in [] represent which of the two parties made the statement

help re-identify themes which could be further analyzed, for example, in conjunction with the time logs and the colour coding of statements, allowing for a more nuanced exploration including when they appeared and who entered them. Central and domain intensive statements were of interest because they were topics of common interest and thus were used as potential starting points for negotiation.

3.5 Exploring the Data Logs of Participants' Contributions

As noted above, alongside analyses of the map's structure, scrutiny of the data log was undertaken seeking to track the generation of the statements and links, along with the authorship of statements and links to plot these over time. Thus, while the *Decision Explorer* model provided a rich visual picture of the relationships between the different elements of the maps, the data logs allowed the research team to gain a second by second understanding of the development of the maps. In other words the

analysis provided us with a detailed view of both the *process* and the *content* of the *Group Explorer*-facilitated negotiation workshop (Ackermann and Eden 2005), which in turn led us to a more fine-grained perspective of why and how the participants were able to reach an agreement in under an hour.

The analysis of the data logs resulted in the creation of a profile for each participant based on an interpretation of their general approach towards the negotiation. The profile showed that while some participants displayed a consistently confrontational behaviour throughout the workshop, some participants clearly changed their mind based on the others' contributions and became more eager to negotiate an agreement. As a result, it was possible to arrive at a very detailed perspective in terms of what happened in the workshops second by second, and at different levels: individual, group, and organizational.

In addition, the analysis revealed different types of links could be associated with different types of behaviours, for example while 'accusation to accusation' and 'admission to accusation' links typically represented confrontational behaviour, 'conciliation to conciliation' and 'conciliation to accusation' links often appeared to seek new paths for agreement. A 'conciliation to accusation' link might have a conciliatory nature because such links were used to explain that certain confrontational actions were not caused deliberately by a given party 'in bad faith', but that party was led to it by some prior challenging situation. As an illustration Henry (team B) defended team A from his prior accusation that team A were rejecting the historical basis for operational planning by linking to this statement a conciliatory statement previously added by Oliver (also team B) which explained that team A was forced to act due to unforeseen circumstances. In other words, the reason why team A engaged in the actions for which they were then criticized was because they had been led to those actions by a challenging situation, and on the causal map this could be seen as a conciliation (the appreciation of the situation) leading to an accusation (the criticized actions).

Moreover, these time based analyses of the log data made it possible to view the contributions in a 'movie' like manner (Ackermann and Eden 2011) with the facility to stop, examine, rewind etc. To facilitate this exploration a video in PowerPoint was created which tracked the evolution of the causal maps. For example it was possible to determine the life of central or high-domain statements, including identifying when it was generated, whether it was linked to by all, or just a few, of the participants or the parties and which team dominated the generation of the context surrounding it.

4 The Nature of the Negotiation

Review of the analysis of the data gave rise to two forms of insights which provide an overarching understanding of the cases. The first form centres on developing a sense of the process or behaviour manifested by the group. In essence it takes a descriptive format. The second form of insight builds on this behaviour and provides the basis for explanation of the rapid resolution of the conflict. In this section, each of these insights are explored in detail.

4.1 Describing the ‘55 Min’ Dance

It emerged from the analysis that in the workshops there could be detected a form of ‘dance’ in terms of gradually ‘Getting to Yes’ (Fisher and Ury’s 1981) in which the participants were mutually affecting each other as they spontaneously and continuously shifted the rhythm and the nature of their contributions. Thus the dance comprised a set of ‘moves’ which flowed from one to another, with the time spent undertaking each ‘move’ being dependent on the conflict situation and parties involved. Understanding both the requirement and detail of these ‘moves’ appears to be beneficial for understanding the 55 min slot of the workshop and can be seen as a form of script (Ackermann et al. 2011). These moves are described below.

4.1.1 The Cathartic ‘Move: Getting it Out on the Table’

The first move centred on participants seemingly finding the initial stages of the workshop cathartic. Participants appeared to gain a sense of relief from having been given the opportunity to express their views without interruption—the logs revealed a clear initial flurry of contributions as they got their views ‘off their chest’. This phase surfaced a range of contributions from accusatory (40 % in first session, and 63 % in second session) to conciliatory (30 %, 27 %), from admissions (10 %, 9 %) to explanations (20 %, 0 %). The sense of emotional release was apparent during the workshops as participants focused only on expressing their views, without paying attention to the views of others (showing on the public screen). This initial flurry was followed by a significant slowing down of contributions as participants began the next move of paying some attention to the views of others by paying some attention to what had appeared on the public screen. This move was dominated by a relatively high proportion of accusatory statements emerging as it appeared that participants began to feel a need to defend or justify contributions. It is significant to note that participants later commented that the accusations captured in this early move were not raised in the previous offsite meetings. Through the use of the GSS, this move accounted for no more than 4–6 min of the workshop, but was clearly defined in terms of nature of contribution and speed of making contributions.

4.1.2 The Reflection and Elaboration ‘Move’

The next move reflected participants shifting in tone of statement from accusatory to more conciliatory statements, explanations, and admissions. Participants began to move from focusing predominantly on their own consoles and contributions to reading the publically displayed material and begin to make contributions that demonstrated reflection and elaboration. For example, as illustrated by the log, participants reading an accusation appeared to add explanations or admissions to the material up on the screen. The move allowed for a review and reflection period, one where participants could absorb what had been captured and, without a need to immediately respond, look at the concerns from both sides. Once again this move took about 2–3 min. This move, appearing on the data log from the second session, is compared against the preceding cathartic move in Fig. 2.

18 & (&) B/A - we did not have a joint understanding of the terminology we were using
19 @ B treated it as academic exercise to achieve desired end point
20 @ A rejected historical basis for operational planning
21 & (@) B must take care not to be viewed as attempting to 'bully' A
22 \$ (@) A did not fully explain why the process was changed and likely impact
23 & (&) A needing to act as a result of the unforeseen circumstances
24 @ B tried every method to delay implementation
25 @ B/A we were not able to articulate a jointly agreed outcome - or when we did it became unpicked
26 @ B needs to recognise consultation in its many forms
27 @ B overated C outcome to changes
28 @ A recent actions did not seem to match A desire to impose changes on the subject of mutual interest
29 & (&) A under pressure from its stakeholders to 'do something' after the unforeseen circumstances'
30 & (&) B/A - we were not very good at communicating clearly
31 \$ (@) A was attempting to develop principles whilst applying them
32 @ (\$) A did not give sufficient time to legal stakeholders
33 \$ (\$) B organisational changes in personnel for stakeholder managment
34 @ A there was a suspicion that there were 'other forces' in play which could not be discussed
35 \$ (@) A took too long to act and finish the changes to the subject of mutual interest
36 @ B never fully understood the basis for the end result so could not explain to others

Fig. 2 Data log—the Cathartic move followed by the Reflection and Elaboration move. The numbers before statements stand for the order in which they were added on the map. The two moves are separated by a thick border in the middle of the table. Both moves took around 1 min of the session. The underlined statements starting with @ symbol are accusations, whilst \$ are admissions and & are conciliations. The symbols in brackets signify alternative interpretations deriving from the uncertainty with respect to which party originally added the statement

4.1.3 Building a Shared Group Definition of the Situation

This move was about participants understanding their own views in the context of others as they linked their views with those of others. Analysis of the data logs revealed that participants began the linking process by focusing on those statements that were relatively broad in scope (e.g. trust) before moving on to linking more detailed or precisely defined statements. This move allowed the meaning of the broad statements to be believed to be co-created where every participant was seen to be able to contribute to the meaning of statements. In this causal mapping situation meaning was derived from seeing the explanations and consequences (in-arrows and out-arrows in the developing causal map). Thus, for example, trust became defined through linking contributions from several participants and from both teams, even though links were actually made by participants who had not contributed the statements, and many links were made by one participant. Again, the opportunity to link statements generated an initial flurry as participants appeared to see ways of linking statements that showed explanations for accusations, admissions explaining accusations (where in some instances the admission had been raised by the team unlikely to make the admission). For example in Figs. 3 and 4 participants collectively negotiated the meaning of two statements which thereby became central to the causal map: that there was no trust between the parties, and that team B should take care not to be viewed as attempting to bully team A. The contributions (links and surrounding statements) came from the two parties, and in both examples they were authored by six different people.

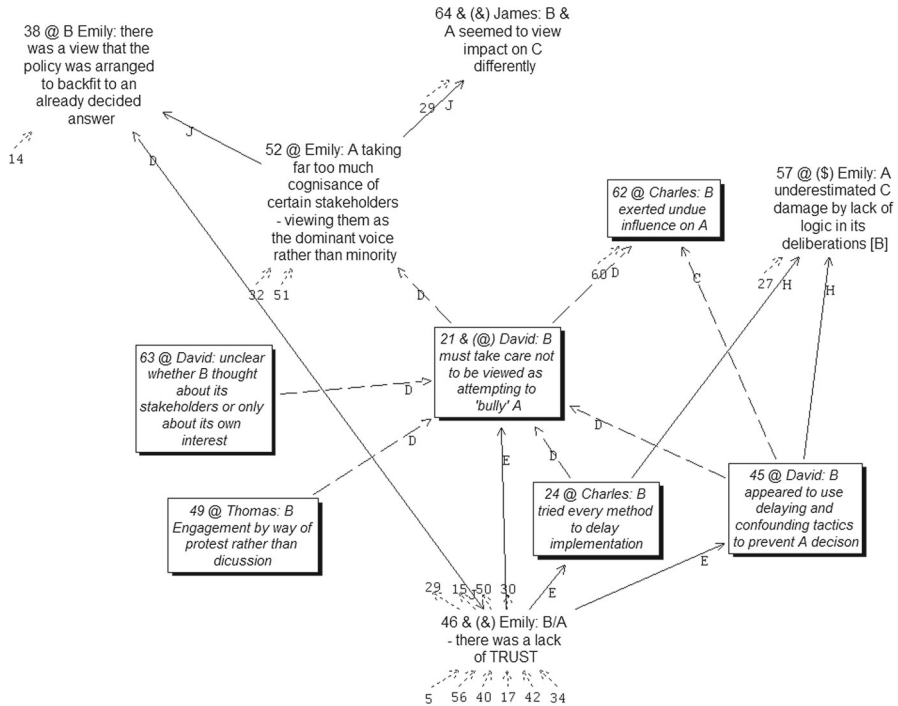


Fig. 3 An example of a group defined understanding. Team A contributions = statements in borders, *dashed arrows*. Team B contributions = statements without borders, *solid arrows*. Letters next to arrow heads are first letters of participant names, e.g. E = Emily, J = James. Within statements A = team A, B = team B, C = third party not involved in the workshop. Symbols before names signify type of statement, with @ = accusation, & = conciliatory, \$ = admission. Symbols in brackets = ambiguous statements with an alternative meaning. Small dashed arrows represent links to other parts of the model which are hidden in this view

4.2 Explaining the Settlement

The previous section reflects the moves of a designed ‘dance’ which, as a result of the Group Explorer GSS, are discrete. In traditional meetings these activities, if they exist at all, would be muddled together as participants fought to gain ‘air-time’ and gain prominence for their own views. This section considers the overall choreography shown in the logs. We consider, in this section, the significance for the role of anonymity, active sensemaking, and the telling of multiple stories. The first of these, anonymity, is directly supported by the data from the logs whereas the other two are informed by a synthesis of the above conclusions from the analyses of the logs.

4.2.1 The Impact of Anonymity

To focus on the impact of anonymity seems like focusing on a simple and pedestrian notion that has been discussed at length in other research on GSSs (e.g. Jessup and Tansik 1991). However, the analysis of the logs showed highly significant impacts of anonymity on the negotiation being conducted in such a short time. This perhaps

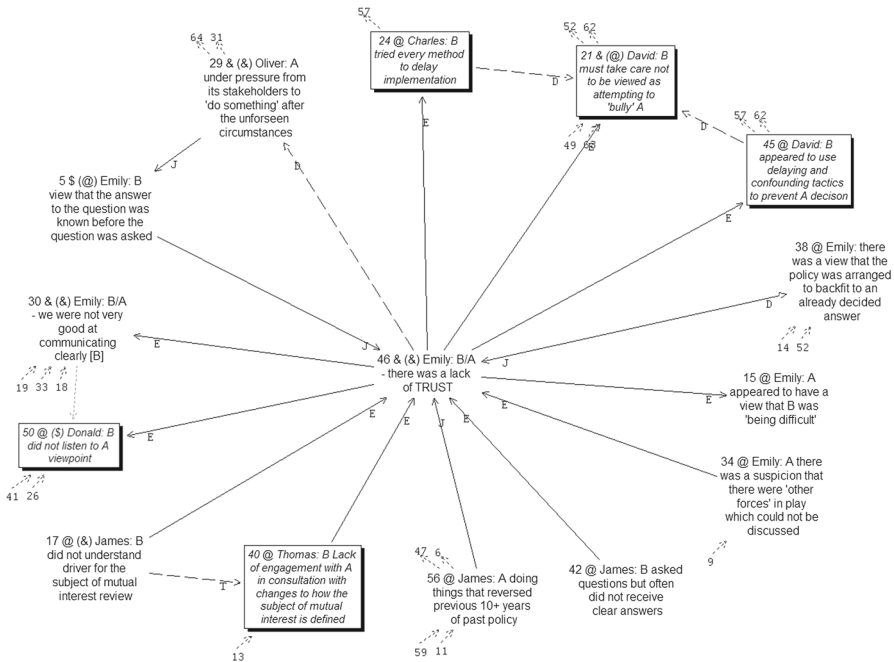


Fig. 4 An example of a group defined understanding (2)

is not surprising as anonymity at least separates the person from the problem so that participants can evaluate the statements by their merit and not by their author, and so have an opportunity for face-saving. As Fisher and Ury's (1981) suggest, the requirement for such separation is an important aspect of successful negotiation and anonymity in these workshops provided this outcome.

In the context of our data analysis there are, however, a number of other impacts of anonymity. For example, one of the benefits of providing participants with anonymity in terms of their contributions was that they were able to 'say' things that they were unable to say in the previous offsite meetings. We suppose that the human need to protect oneself from the emotional and political impact of making blunt, but nevertheless honest, statements to others who one is required to continue a working relationship with discourages raising important contributions that need to be made in a conflict situation. It is likely that because participants did not need to respond immediately to potentially hurtful statements (demanding a physiological response), they were able to respond in a more measured and thoughtful way. Participants noted, in off-line conversations later in the workshops, that this anonymity was pivotal—without getting these potentially contentious contributions onto 'the table' progress would not have been possible and without the anonymity these contributions would not have been made.

The second impact, related to the first, is that it was not possible for members of either team to determine *which team* generated a statement and thus the disposition of the statement was not clear (whether the statement was an accusation or admission). For

instance, in workshop 1 Jessica from team A entered a possible accusatory statement that ‘B behave with more openness and transparency’. This statement could have been interpreted as an admission by team B. The anonymity of contributions thus helped make it less clear where blame originated and thus provided a platform (the model) upon which to build a more positive stance.

The third impact relates to the way anonymity provides ambiguity about link authorship (i.e. which participant entered the link). Thus, meaning is seen to be co-created as the material is linked together in a way that brings the possibly different interpretations together and is not seen to be one or other team’s definition. Chains of argument can be ‘listened’ to without the baggage of proponent knowledge. For example, although the links surrounding one of the central statements were made predominantly by one member of team A this was not known by any of the other participants. Participants could assume that the links had been contributed by all the other participants and so the definition of the situation co-created by the group rather than one individual. When combined with ambiguous language in the statements and ambiguity about who made the statement it is possible that new (shared) interpretations and meanings can be developed by the group (Weick 1995). For example Thomas (team A) defended team B from his team’s own accusation about ‘lack of engagement’ linking it with the statement that both parties had a different understanding of purpose to begin with. In this way Thomas’s link provided an explanation to the accusation and prepared the ground for settlement. In such sense ambiguity can be an indicator of empathy, or it can translate into empathy—an important point which will be developed in the discussion.

It is important to note that these impacts of anonymity are, of course, dependent on having at least two participants from each organization.

4.2.2 Active ‘Sensemaking’

Participants had a sense of enactment as they engaged with the map in real-time. They exposed each other to what each thought, and they learnt more about what they think by engaging with the map on the public screen. In some respects this is a practical example of Weick’s “how can I know what I think until I hear what I say”.⁴ It also seems to resonate with Maitlis and Christianson’s (2013, p. 67) view regarding “a process, prompted by violated expectations, that involves attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby enacting a more ordered environment from which further cues can be drawn.”

Whilst we did not specifically code the data log for occurrences of sensemaking we used the sensemaking idea from the literature to sharpen our discussion how the causal maps were being co-produced during the session. For example, participants linking other participants’ contributions as a situation of sensemaking illustrating Weick’s notion of a cue plus a frame plus a connection may lead to a plausible new story (Weick et al. 2005). As an illustration, halfway through the linking stage Emily

⁴ Huw Weldon of the BBC in Attenborough (2002, p. 216).

attended to an accusation added by Charles from team A saying that ‘team B tried every method to delay implementation’ (for Emily it could be perceived as cue of nonobvious nature), and she linked to it (a meaningful connection) her own statement ‘between teams A and B there was a lack of trust’ (this could serve as a frame justifying the cue). Hence it can be said that Emily negotiated a new meaning through an act of sensemaking in the social context, and many similar acts could be observed in the sessions. This sense of engagement seemed, importantly, to be at both an individual and organizational level. For example as we stated above, participants developed a *group definition* and understanding of the situation. Social pressures were reduced to allow cautious generation of concerns, frustrations, and assumptions to be captured.

The nascent shared understanding was reinforced by the ability to link the statements on the map, thus helping participants to actively engage with the contributions of others. As such they appeared to unravel the complexity of their collective thinking. Participants drew on otherwise camouflaged contributions such as accusations voiced during the cathartic move, as they added to the map at their own pace, and without competing against others as to who ‘takes the control’. The group map served as a point of reference that was not an external, independent object, but was rather an artefact collectively developed by participants (Belmondo and Sargis-Roussel 2015)—the map became the ‘boundary object’ that was owned and understood by the participants, an ‘object’ that captured the socio-political as well as the rational elements of the situation.

4.2.3 Telling Multiple Stories at Different Levels in the Same Time

The video analysis (created using PowerPoint as noted above) suggested that participants develop (by adding statements and links) and track (by following the screen) multiple stories evolving concurrently and taking place at different levels: at an *individual level*, and at *organizational level* (that is, as told by one of the parties). Furthermore, at a level that can be referred to as a *collective level* it was possible to see a story representing the whole picture—an array of meanings including (a) honest accusations, (b) ‘finger pointing’ to the other team’s blame and to their own admissions, (c) attempts to build the ground for reconciliation, and (d) the switch from ‘blame to reason’. The pluralistic character of the whole picture provided the much needed richness and balance of meanings that was required for establishing an alignment of views. In other words, a settlement is underpinned by the *interplay of both blame and the readiness for reconciliation*. In this sense the collective story—the whole picture—is different than the sum of its parts. An example of this is the evolving nature of a key statement regarding lack of trust. Initial statements, made during the cathartic move, were given new meanings as the participants negotiated their understanding of these statements by linking each other’s statements and so taking ownership of each other’s ideas. As such the statement ‘a lack of trust’ (the most central statement in workshop 2 and shown in Fig. 4), gained a meaning specific to the negotiation of the conflict—it was not just a lack of trust in a dictionary sense but a lack of trust as understood by the participants in that very moment, in that situation, and within that context.

5 The Contribution of the GSS to Multi-Organization Negotiation

This research has developed a description of what happened in, and what explains, two workshops where a mutually agreed settlement of a conflict between two organizations was achieved in under 1 h. The descriptions set possible ‘standards’ for workshop design. But they also beg the question as to whether a GSS is crucial to that design. In this section we address this question.

While the dance can, of course, also take place in a traditional meeting, the GSS, encompassing causal mapping, provides the cathartic dance moves derived from (a) the ability to express blunt views which could not have been expressed in the previous forums, and (b) connecting one participant’s view with the views of others. The dance moves are facilitated through the GSS provision of allowing participants’ freedom in expressing their views at their own pace. Anonymity provides the ambiguity and equivocality that is crucial to arriving a mutually agreed settlement.

The GSS, equipped with a mapping facility, also allows participants the ability to enter and visually track, at one’s own pace, the gradually appearing links and statements

Table 1 Shows the key components of effective negotiation

How to arrive at a mutually agreed resolution in under an hour?	
What do participants do?	See both the whole picture and the details Provide blunt contributions which might be camouflaged in a typical meeting Focus on the ‘nub of the issue’ Exploit ambiguity Expose each other to what both teams think Participate in collective sense making and socially enact new meanings by building a shared map in real-time Tell multiple stories at different levels (individual, group, ‘the full picture’) in the same time Collectively elaborate the contributions
How does Group Explorer (GSS) support this?	Provides anonymity Enables multiple contributions in the same time Enables causality Captures systemicity: patterns/clusters/networks of views Provides real-time interactive analysis: Vicious cycles (Feedback), Centrality (Domain), ‘tear-drops’ (explanatory arguments) Reveals centrality of particular views Facilitates the ‘dance’ moves: cathartic generation of both assertions, and linking Provides flexibility in exploring/manipulating the content on the map

on the public screen. Consequently participants see how their contributions connect with those of others' and actively develop the basis for a new kind of relationship between the teams.

In these ways a workshop encompassing a GSS using causal mapping enables the group to arrive at mutually agreed resolution in under an hour. Table 1 summarizes the contribution of the GSS by answering the question: why couldn't these conflict situations be resolved using the 'traditional' meetings/workshops employed by the teams?

6 Conclusion

The reported research contributes to an initial understanding of the dynamics of negotiation in a workshop that is facilitated by a GSS equipped with a mapping feature. It also helps to better understand the moves necessary to provide an environment in which a focused negotiation capable of producing a desirable outcome for both parties in under an hour is possible. These findings can assist in both furthering academic knowledge and providing assistance to practice in the areas of negotiation, GSSs, and facilitation scripts. While previously it had already been known in the literature that an application of a GSS could translate to good outcomes in supporting strategy making in groups (Ackermann and Eden 2010), this research provides a more fine-grained understanding of how a GSS can be useful within this context of conflict.

The paper has noted where the technical aspects of a GSS, such as simultaneity, anonymity and the possibility to generate a causal map, were linked to specific activities, 'moves', carried out by the participants that were supported by those aspects. In this fine grained understanding of negotiation a mutually desirable outcome is socially enacted through personal acts of building a shared causal map, with the map serving as a visual projection (transitional object or boundary object) of the participants' thinking. As a result the individual, organizational, and the collective contributions tell stories of the past, the present, and the future of the undertaken negotiation: accusing and blaming the other team, defending oneself and the others, admitting to failure, explaining why certain things happened, and looking for spaces where a shared direction might be considered. From this perspective a search for mutually desirable outcomes is not only about securing a fairly neutral ground upon which to build a settlement, but about developing systemic and meaningful relationships between different types of views.

In this research the data derived from the use of a specific GSS—*Group Explorer*. To help begin to understand which components of GSS provide support for the different moves and negotiation we have contrasted the use of that GSS with 'traditional' or 'normal' meetings. This is done on the basis of an extensive knowledge of the area, from working in manual and computer supported arenas and from details conversations with those involved in the development and use of the other GSSs.

When looking at the contributions of GSS for negotiation, it is worth reflecting on the fact that there are other GSS those that involve computer and software support, and some GSS that are purely manual. There are also some GSSs that incorporate 'mapping' techniques and others that do not. Table 2 compares characteristics of four

Table 2 Comparison of forms of support for groups in conflict

Significant characteristics from this research system	Anonymity/ambiguity of accusation & Admission	linking/Causal linking	Visualising whole 'picture' (Systemicity)	Simultaneity of contributions	Real time analysis of contributions (e.g. centrality)	Cluster messy information
Normal' meetings	N	N	N	N	N(except by excellent 'chair')	N (except by excellent 'chair')
Group casual mapping without software (e.g. oval mapping)	?	Y	Y	Y	?	Y
GSS (no causal mapping) e.g. group systems	Y	?	?	Y	N	Y
GSS with causal mapping (e.g. dialogue mapping)	N	Y	Y	N	N	Y
GSS with causal mapping (e.g. group explorer)	Y	Y	Y	Y	Y	Y

different approaches to supporting the resolution of a conflict situation: a traditional meeting; causal mapping using ‘ovals’ or ‘post-its’ on the wall; a well-established GSS such as ‘*Group Systems*’ (now called ‘*ThinkTank*’) that makes no use of causal mapping; and finally the system used for the workshops reported in this research (‘*Group Explorer*’) alongside another that incorporates mapping (‘*Dialogue Mapping*’). This table provides a starting point for exploration and is not intended to be definitive but rather a tentative point of view. Further exploration of the contributions of different features—contrasts and similarities—might assist in developing a deeper understanding of how GSSs can be designed to support conflict situations, and in particular, to do so rapidly.

This research is limited to two workshops which involved two organizations and so the research must be viewed as exploratory. However, it is important to note that real cases of multi-organizational conflict that are accessible to researchers are not easy to find. The research therefore provides a valuable starting point from which to understand the micro processes of negotiation, and develop GSSs.

Further research using the analytic processes with different organizations and with different characteristics of group motivation e.g. collaborative rather than conflictual will help further test and refine the extant knowledge. Building on the table and the ‘moves’ described here, research into facilitation scripts, GSS design, stakeholder dispositions can be extended. The work may also stimulate new avenues in the emerging areas of co-opetition, and help in mediation.

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